Meeting Minutes  
API SC5 Tubular Goods  
Task Group on Line Pipe  
WG4240 – HTP Chemical Changes to 5L  
API Winter Standards Meetings, Austin, TX  
January 18, 2016 13:30 – 15:00 CDT

Location: Renaissance Austin Hotel, Austin, TX

Attendees (from attached attendance list):
Members:
Martin Francis ArcelorMittal  
Colleen Fatla JMC Steel  
Mike Childress SW Gas  
Russell Dearden Tata Steel  
Carlo Isabella USS  
Katie Day Evraz  
Dwight Karr Tenaris  
Kenton Dechant Bri-Steel Manufacturing  
Dmitry Tsvelev Steel Dynamics Col  
Joshua Robach Tenaris  

* new member

Members absent:
Pankaj Mittal Welspun  
Robert MacKenzie Enbridge  
Laurie Collins Evraz  
B. Henley Tex-筒  

Visitors:
Yunior Hiue EMC2  
Joe Kondo JFE  
Satoshi Igi JFE  
Christoph Kalwa Europipe  
Tanja Schmidt Vallourec  
Xiaofeng Xu CNPC  
Hal Edwards Shell  
David Fisher MRC Global  
Tetsuya Fukuba NSSMC  
Tetsuya Koshikawa NSSMC  
Alejandro Martinez Tex-Isle  
Bisen Lin USS  
Mario Macia ExxonMobil  
Steve Wan Corrmat  
Michael Castellane Steel Dynamics  

Copies:  
Ben Coco API

Minutes:

<table>
<thead>
<tr>
<th>Agenda Topic</th>
<th>Discussion</th>
<th>Action</th>
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<tbody>
<tr>
<td>Roll call</td>
<td>Alex Afaganis introduced himself and, following API standard practices, all attendees identified themselves. Attendance is documented in attachment 1.</td>
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<tr>
<td><strong>Meeting Minutes</strong></td>
<td>Alex took notes to assist in providing input for the minutes</td>
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<tr>
<td><strong>Presentation - Background</strong></td>
<td>Reviewed presentation (attachment 2) A request was made to post materials previously distributed to API sharepoint site.</td>
<td>Reviewed with Ben Coco. API will set up in next month or so.</td>
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<tr>
<td><strong>Presentation – Table 5</strong></td>
<td>1. Scope of changes – It was initially proposed to apply to X52 to X80 grades but several participants identified that this may result in problems with some X52 distributor pipe. Further it was noted that the higher Nb is unnecessary for such lower grades. It was agreed to apply changes to X60 to X80 grades. 2. Nb+C&lt;= 0.20 – reviewed the criteria, background information and a summary figure below was presented. This equation was reviewed and accepted for inclusion into Table 5 (as well as Tables H.1, &amp; J.1.</td>
<td>Alex to mock up a draft change for review (attached) Alex to mock up a draft change for review (attached)</td>
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| **Diagram** | ![Diagram](image) |

3. Ti <= 0.030% - Discussed and agreed was acceptable to consider higher N alloys and appropriate to include in Table 5. 4. Al – There was a proposal at the last meeting to insert 0.060% limit. Two issues were noted: a. Al limit of 0.060% is too restrictive for many manufacturers – it was proposed that a 0.07% Al content should be defined. b. Al content was not specific as to whether total or acid soluble aluminum (ASA) or total aluminum. This issue was not fully resolved. *Note after the meeting, total Al may not be available for all heat or product checks as many manufacturers use ASA.* 5. N – There was a proposal at the last meeting to insert 0.012% limit. There was a discussion on the ability of EAF steel manufacturers to consistently meet this requirement and an alternate proposal of 0.015% was submitted. There was general acceptance of this approach. 6. Al:N – There was a proposal at the last meeting to insert a minimum limit but there was little discussion on this item other than its expression of being fully killed. Given the other options I propose this be removed. | Alex to mock up a draft change for review (attached) Alex to mock up a draft change for review (attached) Alex to mock up a draft change for review (attached) |
The proposal to apply the Nb + C <= 0.20 and Ti <= 0.030 limits to sour service products in the same manner as Table 5 while dropping the microalloy maxima was discussed. Kirk raised a concern about potential impact of local brittle zones and toughness reductions in HAZ for such a severe environment. It was later clarified that the concern was regarding solution A line pipe. Specific information was requested addressing these issues. It was agreed to address this issue within WG4232 moderate sour 5L. There is no need for supplemental Al, N and Al:N limits as it is already addressed through note c to Table H.1.

A proposal similar proposal was made as in sour but there were no noted concerns. There is no need for supplemental Al, N and Al:N limits as it is already addressed through note c to Table J.1.

After the meeting, in a meeting on development of a strain based design (SBD) annex, it was proposed that similar requirements should be considered in this annex as well.

None raised and no items raised to vote

General: June 2016 API meetings unless otherwise called

Minutes taken by Alex Afaganis and issued January 22, 2015

<table>
<thead>
<tr>
<th>Attachments:</th>
<th>Description/Title</th>
<th>File</th>
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</table>
| 1                                                                           | API: Record of Meeting attendance                                                  | [WG4240]
|                                                                             |                                                                                  | Attendance list Jan 18 2016                                          |
| 2                                                                           | Alex Afaganis (Evraz): WG presentation of work status                             | [WG4240 HTP]                                                         |
|                                                                             |                                                                                  | Chemical Changes Jan 18 2016                                         |
| 3                                                                           | Alex Afaganis (Evraz): proposed mock-up of changes to body, and annexes H & J (and X) | [WG4240 5L excerpts 20Jan2016]                                      |